

THE LEARNING COMMONS MODEL: BUILDING COLLABORATION, ASSESSMENT, AND USER EXPERIENCE INTO THE EDUCATION SYSTEM

EQUITABLE ACCESS TO CONTENT FOR ALL

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ACADEMIC SPECIALIST; FACULTY

CO-APPOINTED MATHEMATICAL SCIENCES AND
UNIVERSITY COLLEGE

ROLES:

DIRECTOR OF MATHEMATICS ASSISTANCE CENTER
(MAC)

DIRECTOR OF STATISTICS ASSISTANCE CENTER (MAC
STAT)

OUTCOMES: PI OR LEADERSHIP TEAM ON \$12+ MILLION
IN GRANTS IN THE 4 YEARS AT IUPUI. DESIGNED AND
EXECUTED LC MODEL FOR MAC AND MAC STAT
RECEIVING NATIONAL AWARDS FOR RESEARCH AND
MODEL.



Crossroads Education Founder and CEO

Spin UP partner of Indiana University with IU
licensed products. Chief designer and architect of all
products and services.

Products:

- **Learning Spaces Consulting**
- **Professional Development Programs**
- **Suite of SaaS products**
 - Nexus Virtual Learning Spaces
 - Compass: Analytics and Tracking
 - LC Manage

IN OUR CURRENT SYSTEMS STUDENTS' MAIN ACCESS TO
MATHEMATICAL CONTENT AND HABITS OF MIND ARE
THROUGH LECTURE...
AND HIGHLY DEPENDENT UPON THE ACCESS POINT OF
THE PROFESSOR AND CURRICULUM

PEER REVIEWED JOURNALS:

WORDS OR PHRASES ASSOCIATED WITH THE
TRADITIONAL METHODOLOGIES FOR DELIVERING
MATHEMATICAL CONTENT

INEFFICIENT

TOO MUCH, TOO FAST

DULL

ANXIETY

FEAR

**DISCRIMINATORY
TOWARDS MINORITY AND
FIRST-GENERATION
STUDENTS**

BIASED

**I FRAME LECTURE AS A LOGISTICAL
CHOICE NOT A PEDAGOGICAL CHOICE.
DO WE DISAGREE?**

But, we cannot ignore this:

The most uniformly held negative attitude in learning mathematics is directed at the delivery of lectures (Yosof & Tall, 1999).

It is time to be committed to
accelerating the world's transition to a
higher quality user experience in
education.

THE LEARNING COMMONS MODEL

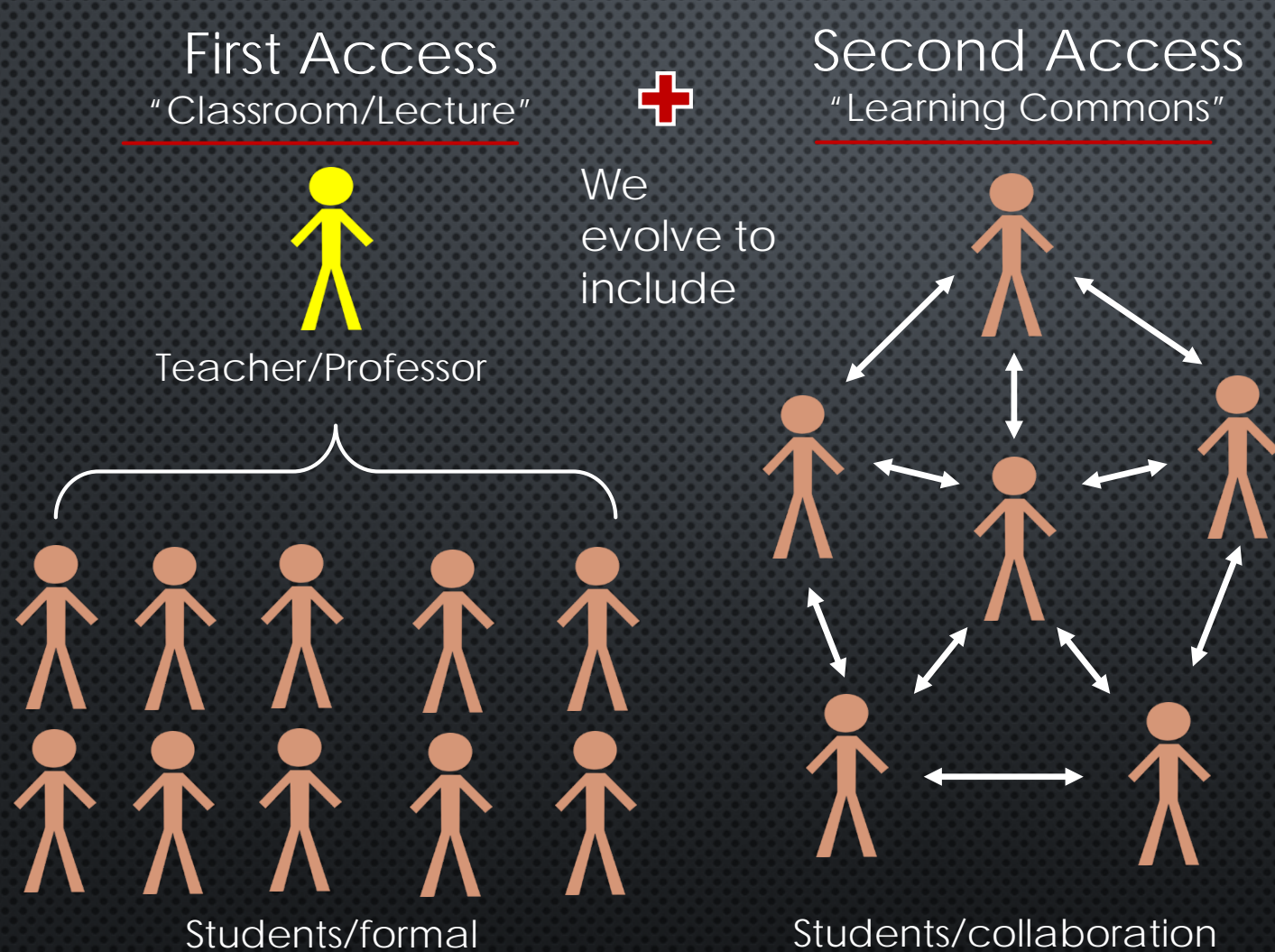
- THE MODEL
- THE ASSESSMENT
- THE USER EXPERIENCE
- THE CONNECTION

THE LEARNING COMMONS MODEL

- **THE MODEL**
- THE ASSESSMENT
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Remember this if you remember anything: You learn best from the art of teaching... so let's build that into our system

WHAT IS IT? THE LEARNING COMMONS MODEL



LC is providing the context for a re-branding of second-access to content:

- Tutoring is about collaboration not remediation
- Provides a collaborative learning common experience that replicates the professional learning culture
- All student workforce... students that are teaching are also learning
- Technology provides the invisible catalyst to facilitate more effective collaboration

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THE LEARNINGS COMMONS MODEL WORKS

STUDENTS ENGAGE WITH THE LEARNING COMMONS (LC)

- AVERAGE **42% ANNUAL GROWTH** SINCE INSTALLATION OF THE LEARNING COMMONS MODEL IN 2013

ENGAGEMENT WITH THE LC IMPROVES OUTCOMES

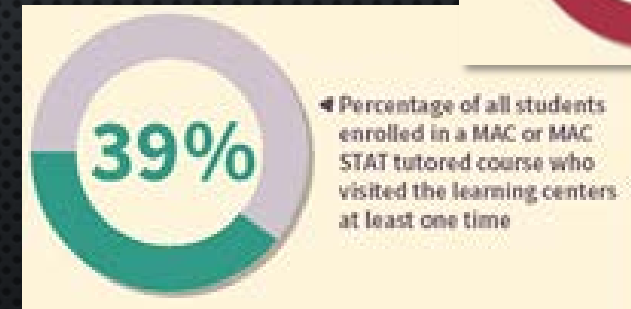
- QUASI-RANDOMIZED CONTROL TRIAL MATCHED PEERS AND SHOWED A **1.5 LETTER-GRADE IMPROVEMENT** (LIKE CHANGING FROM A C TO A B+) FOR THOSE THAT USE THE LC

IMPROVED OUTCOMES DRIVES BETTER STEM RETENTION

- FOR BOTH STUDENTS THAT WORK AT THE LC AND FOR STUDENTS THAT VISIT FOR THEIR COURSEWORK

THE LC MODEL IS MUCH MORE COST EFFECTIVE

- LC SERVES 4X NUMBER OF STUDENTS AT UNIVERSITY COST THAT IS MUCH LOWER PER STUDENT THAN STAFF DEPENDENT MODELS



HOW WE COLLECT DATA

COMPASS: ANALYTICS AND TRACKING

SOFTWARE CREATED BY STUDENTS TO DEVELOP OUR CAPABILITIES FOR COLLECTING FINE GRAINED ENTERPRISE LEVEL DATA ABOUT STUDENT USAGE OF RESOURCES



“ ETHICS PREVENT US FROM RUNNING AN ACTUAL CONTROL AND EXPERIMENTAL GROUP IN THIS TYPE OF HUMAN SUBJECT RESEARCH. BUT, THERE IS SOMETHING WE CAN DO TO CONDUCT A QUASI-EXPERIMENTAL STUDY ”

BERKOPES & CHIU WORKING MANUSCRIPT

AS STUDENTS ARE NOT RANDOMLY ASSIGNED TO THE CONTROL OR EXPERIMENTAL GROUPS (POTENTIAL *SELECTION BIAS*), WE CONDUCT A *QUASI-EXPERIMENTAL STUDY* TO APPROXIMATE A *RANDOMIZED CONTROL TRIAL (RCT)*

INNOVATE ON ASSESSMENT TECHNIQUES

- RANDOMIZED CONTROL TRIAL- (RCT) A STUDY IN WHICH PEOPLE ARE ALLOCATED AT RANDOM (BY CHANCE ALONE) TO RECEIVE ONE OF SEVERAL CLINICAL INTERVENTIONS. ONE OF THESE INTERVENTIONS IS THE STANDARD OF COMPARISON OR **CONTROL**. THE **CONTROL** MAY BE A STANDARD PRACTICE, A PLACEBO ("SUGAR PILL"), OR NO INTERVENTION AT ALL.

5 DATA MATCHING TECHNIQUES AVERAGED:

- PROPENSITY SCORE MATCHING (PSM)
- MAHALANOBIS DISTANCE MATCHING (MDM)
- COARSENEDED EXACT MATCHING (CEM)
- MAHALANOBIS FRONTIER
- L_1 FRONTIER

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VIDEO

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HOW WE CONNECT

NEXUS VIRTUAL LEARNING SPACES

SOFTWARE CREATED BY STUDENTS TO
DEVELOP OUR CAPABILITIES FOR SCALING
OUR CULTURE OF COLLABORATION AND
PROVIDING EQUITABLE ACCESS TO
CONTENT FOR ALL.

The screenshot displays the Nexus Knowledge Base interface. At the top, there is a navigation bar with a logo, a 'Search' button, and the text 'Knowledge Base'. On the right side of the header, the username 'berkpek' is visible next to a profile icon. The main content area features a large search bar with the text 'Search for your problem here to get started'. Below the search bar, the query 'Difference between integration and the anti-derivative?' is entered. A message states 'No results were found.' and suggests 'You may want to create a new table for your question.' Below this, a list of subjects is shown, each with a 'New Table' button and a plus sign: College Algebra and Trigonometry, Finite Mathematics, Business Calculus, Calculus I, Calculus II, and Statistics. On the right side, there is a 'Knowledge Base' section with a list of questions: 'how do you integrate the sin function?' (dated Tuesday, May 23, 2017), 'how do I find the area of a square?' (dated Tuesday, May 16, 2017), and 'how do I find the perimeter of a 4d?' (dated Wednesday, May 17, 2017).

Search for your problem here to get started

Difference between integration and the anti-derivative?

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No results were found.

You may want to create a new table for your question.

College Algebra and Trigonometry	New Table +
Finite Mathematics	New Table +
Business Calculus	New Table +
Calculus I	New Table +
Calculus II	New Table +
Statistics	New Table +

Knowledge Base

- how do you integrate the sin function?
Tuesday, May 23, 2017
- how do I find the area of a square?
Tuesday, May 16, 2017
- how do I find the perimeter of a 4d?
Wednesday, May 17, 2017